

### **REMARKS**

Claims 1-5, 7-17, 19-22 are currently pending in the subject application and are presently under consideration.

Applicants' representative thanks Examiners for the courtesies extended during the telephonic interviews conducted on June 14, 2007. Examiners were contacted to discuss the distinctions between the prior art references and the claim limitations with respect to 35 U.S.C. §103(a). Examiner indicated that further search and consideration was required to determine if the claims would be allowed over the cited prior art.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

#### **I. Objection of Claim 13**

Claim 13 is objected to because of the following informalities: in claim 13, line 3, "[0]" at the end of the claim should be deleted. The "[0]" appears to be an artifact that was introduced during a conversion from a MSWord document to a pdf file. This artifact has been removed from the claim. As such, withdrawal of this objection is respectfully requested.

#### **II. Rejection of Claims 1-5, 7-17, and 19-22 Under 35 U.S.C. §103(a)**

Claims 1-5, 7-17, and 19-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Safranek et al. (US 2004/0193755) in view of Kondratiev et al. (US 6,922,740). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Sanfranek *et al.* and Kondratiev *et al.*, alone or in combination, do not teach each and every element of applicants' invention as recited in the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP §706.02(j). The teaching or suggestion to

make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *See In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Independent claim 1 (and similarly independent claims 14, 17, 21 and 22) recites *an access data store that stores access information associated with memory, the access data store comprising an access table, the access table comprising a source identifier field, a memory address field and an access attribute field, the access attribute field distinguishes from amongst two or more of read, read and write, write, and no access to indicate access for a combination of source and memory range identified in the source identifier and memory address fields; and a memory controller that employs the access information to determine whether a requested direct memory access is permitted and rejects the requested direct memory access if it is not permitted*. As conceded in the Office Action, Sanfrank *et al.* does not teach or suggest the aforementioned novel aspects of applicant's invention as recited in the subject claims. The cited art discloses a method for preventing non-CPU devices from accessing protected memory. This is accomplished by maintaining a NODMA memory cache where each bit in the cache represents a page of memory. The setting of the bit (0 or 1) determines if the associated memory page is protected. If a memory access request for a page comes from a non-CPU device and the NODMA cache indicates that the page is protected, the access will be denied. However, this provides very fine control of memory pages, but lacks the combined source, memory, and access type control of the subject claim. Kondratiev *et al.* is cited to make up for the above noted deficiencies of Sanfrank *et al.* Kondratiev *et al.* teaches a system for controlling DMA access from devices. The cited art discloses a table that contains rows containing device ID, read memory range, write memory range and duration. This provides an access control list that indicates memory ranges a device is allowed to access. However, the table *only* indicates memory ranges that are allowed access. Moreover, read and write access are indicated in two separate fields. The access attribute in applicant's claimed invention provides both allowed and disallowed access information including access type within a single field. This provides allowed and disallowed control information to be stored together, as well as providing both types of information for a single device. For example, the table can have an entry for device A indicating read access for memory range X and another entry for device A indicating no access for memory

range Z. In another example, the table could have an entry for device B indicating no access for memory range Y, thereby allowing it access all memory ranges except Y. Using the combination of a source identifier field, a memory address field and an access attribute field allows for more robust definition of memory access privileges using reduced table space.

Additionally, the Office action asserts that the claims 14, 17, 21 and 22, do not recite “access attribute in applicant’s claimed invention provides both allowed and disallowed access information including access type within a single field.” The arguments above do not claim that this specific limitation is recited, but that the recited limitation does provide for this feature. For example, claim 1 recites *the access attribute field* (this is a single field) *distinguishes from amongst two or more of read, read and write, write,* (this indicates allowed access and the type of access) *and no access* (this indicates disallowed access) *to indicate access for a combination of source and memory range identified in the source identifier and memory address fields.* Therefore, the limitation as recited does provide for both allowed and disallowed access information including access type within a single field. Kondratiev *et al.* and Sanfraneck *et al.*, fail to teach or suggest the access attribute field *distinguishes from amongst two or more of read, read and write, write, and no access* to indicate access for a combination of source and memory range identified in the source identifier and memory address fields.

Accordingly, applicants’ representative respectfully submits that Sanfraneck *et al.* and Kondratiev *et al.*, alone or in combination, fail to teach or suggest all limitations of applicants’ invention as recited in independent claims 1, 14, 17, 21 and 22 (and claims 2-5, 7-13, 15, 16, 19 and 20 that depend there from) and thus fails to make obvious the subject claimed invention. For this reason, this rejection should be withdrawn.

**CONCLUSION**

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP553US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROC & CALVIN, LLP

/Himanshu S. Amin/

Himanshu S. Amin

Reg. No. 40,894

AMIN, TUROC & CALVIN, LLP  
24<sup>TH</sup> Floor, National City Center  
1900 E. 9<sup>TH</sup> Street  
Cleveland, Ohio 44114  
Telephone (216) 696-8730  
Facsimile (216) 696-8731